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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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Robert A. Kent
Halliburton Energy Services
2600 S. 2nd Street
Duncan, OK 73536-0440

EXAMINER

RICHARD, CHARLES R

| ART UNIT | PAPER NUMBER |
|----------|--------------|
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1712

DATE MAILED: 08/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/670,410

Applicant(s)

WEAVER ET AL.

Examiner

C. R. Richard

Art Unit

1712

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-54 is/are pending in the application.
- 4a) Of the above claim(s) 46-54 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-45 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☒ Claim(s) 46-54 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119 •

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>9/24/03</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-45, drawn to a well treatment fluid (and related methods of using same), classified in class 507, subclass 211.
- II. Claims 46-54, drawn to a sulfonated polymer, classified in class 536, subclass 1+.

The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are related as mutually exclusive species in an intermediate-final product relationship. Distinctness is proven for claims in this relationship if the intermediate product is useful to make other than the final product (MPEP § 806.04(b), 3rd paragraph), and the species are patentably distinct (MPEP § 806.04(h)). In the instant case, the intermediate product is deemed to be useful as a cosmetic component (among other possibilities) and the inventions are deemed patentably distinct since there is nothing on this record to show them to be obvious variants. Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions anticipated by the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

Art Unit: 1712

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

During a telephone conversation with Applicant's attorney, Robert Kent, on August 4, 2005, a provisional election was made without traverse to prosecute the invention of group I (claims 1-45). Affirmation of this election must be made by Applicant in replying to this Office action. Claims 46-54 are withdrawn from further consideration by the Examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-45 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The phrase "high ionic strength" is used to limit the polymer called out in these claims. The meaning of this phrase has not been specifically given in the specification. The term normally would be taken as meaning something *akin* to a high concentration; "straight" concentration of polymer alone may not what was intended given the usual concept of "ionic strength". Perhaps, the degree of substitution by sulfonate groups has

Art Unit: 1712

to be considered, although Applicant does not appear to mention this – “ionic strength” would usually be thought to include a consideration of this to some extent, at least for polymers, perhaps in “combination” with “straight” concentration of the polymer. There is no indication as to what form such a “combination” would take, nor what the value of any necessary coefficients would be. In addition, there is no indication numerically as to what “high” would encompass.

Applicant does mention that preferred ranges for polymer are 20 to 60 or 30 to 45 pounds per 1000 gallons (see specification at page 5, paragraph 16). The examples use 0.5% “sulfonated guar”, but there does not seem to be an indication of degree of substitution here, or any elsewhere in the specification for that matter.

As it appears that this “high ionic strength” may be of great importance regarding the patentability of the present invention, this lack of definition cannot be ignored or taken lightly. The public has a right to know what Applicant is claiming and should easily be able to determine what an infringing act would be against any claim(s) that might issue from the present application.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent

Art Unit: 1712

granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-3, 8-9, 12, 31-33, 38-39 and 42 are rejected under 35 U.S.C. 102(b) as being anticipated by Wagner et al. in US Patent 2,626,239. Wagner discloses drilling fluids containing sulfonated cellulose derivatives and methods of using same.

Wagner specifically teaches sulfonates of methyl, ethyl and propyl cellulose ethers (see column 2, line 49 to column 3, line 23). Substitution may be complete, but may be much lower than that; a range of degree of substitution of 0.2 to 3.0 is specifically given (see column 3, lines 24-35). The sulfonated cellulose derivative may be used at a concentration of 0.1 to 2 or more pounds per barrel of conventional aqueous drilling mud – 4 pounds per barrel is also mentioned (see column 3, lines 43-51 and column 4, lines 4-9). The beneficial use in high salt conditions is specifically taught (see column 3, lines 52-60); use to lessen water loss (a well treatment) among other uses is taught (see column 4, lines 15-30). The steps of preparing/providing and introducing into a well as well are given in the various process claims of the reference.

6. Claims 1-3, 5, 12-13, 15, 31-33, 35, 42-43 and 45 are rejected under 35 U.S.C. 102(b) as being anticipated by Shu in US Patent 4,903,768. Shu discloses fluids for profile control in well zones (a well treatment).

The compositions of Shu are aqueous gellable temperature activated compositions comprising a polymer (such as a sulfonated polyvinyl alcohol), a phenol

Art Unit: 1712

and an aldehyde (the last two for crosslinking the polymer) (see column 4, line 55 to column 5, line 51). The polymer may be used at 0.5 to 10 weight percent of the aqueous mixture, and the water employed may be fresh, brackish or seawater (see column 5, lines 10-15). The phenol and aldehyde may be used at 0.5 weight percent or so or more each (see column 5, lines 25-50). The providing/preparing and introducing steps are given directly or by clear implication by the use disclosed throughout Shu – see claim 1 in particular.

7. Claims 1-3, 5, 12, 31-33, 35 and 42 are rejected under 35 U.S.C. 102(b) as being anticipated by Bloys et al. in US Patent 5,292,367. Bloys discloses fluids for drilling and completion (well treating).

The fluids of Bloys employ a dispersant to avoid flocculation when cement components are added to aqueous drilling fluid (see column 2, lines 57-65). Dispersants used are sulfonated polymers such as a sulfonated copolymer of acrylic acid and acrylamide (see column 4, lines 27-39); there must be at least enough sulfonate groups to render the polymers water soluble (see column 6, lines 1-5) – specific examples are given (see column 5, lines 3-14). The polymer may be added at 0.1 to 20.0 (or 1.0 to 10.0) ppb (see column 6, lines 22-26). The steps of the rejected method claims are at least implied in the uses taught.

8. Claims 1-4, 12, 31-34 and 42 are rejected under 35 U.S.C. 102(b) as being anticipated by Yeh in US Patent 5,552,462. Yeh discloses fluids containing polymers

Art Unit: 1712

capable of enhancing viscosity and such fluids are useful as oil field chemicals (like well treating) (see Abstract).

The fluids of Yeh may contain a cationic polymer (like a polygalactomannan derivative), an anionic substituted xanthan gum and water; the degree of substitution on the cationic polymer may be as high as 3.0 (see column 4, lines 25-35). The preferred anionic substituent for the xanthan is a sulfonate (see column 6, lines 34-36) and the xanthan may be present at about 0.1 to 2.0 weight percent (see column 6, line 59 to column 7, line 5); see Example 1 for 0.5 weight percent xanthan sulfonate. The degree of substitution of the xanthan should balance that of the cationic polymer; this substitution thus may be high (see above and column 7, lines 5-15, as well as Example 1). The use of this polymer in well treatment and a corresponding step such as pumping downhole are at least implied (and would be instantly envisioned by those of ordinary skill in the art) given the disclosure of the use as an oil field chemical and the viscosity enhancing property taught and mentioned above.

9. Claims 1-3, 5, 13-14, 31-33, 35 and 43-44 are rejected under 35 U.S.C. 102(b) as being anticipated by Newhouse et al. in US Patent 6,133,204. Newhouse discloses use of polymer gels in well treatment.

Polymer solutions of water and polymer (such as a sulfonated acrylamide polymer) are combined with cross linker and pumped downhole; the crosslinker may be zirconium, titanium or aluminum (see column 3, lines 15-67). Example 1 shows a

Art Unit: 1712

polymer solution of 5% polymer being used. Further treatment with breakers allows for selective permeability of oil versus water bearing strata (see Abstract).

10. Claims 1-3, 5, 12, 31-33, 35 and 42 are rejected under 35 U.S.C. 102(e) as being anticipated by Powell et al. in US Patent 6,913,081. Powell discloses a scale inhibitor and water control treatments.

Powell discloses the use of a sulphonated polyacrylate as a downhole scale inhibitor (see column 4, lines 1-10). The inhibitor may be used to treat a well by injecting an aqueous brine solution of the polymer downhole at a polymer concentration of tenths of a percent to 10% (see column 4, lines 40-50).

11. Claims 1-3, 6-7, 10, 12-18, 21-22, 25, 27-33, 36-37, 40, 42-45 are rejected under 35 U.S.C. 102(e) as being anticipated by Dawson et al. in US Patent 6,844,296. Dawson discloses fracturing fluids and methods of making and using them. As a courtesy to Applicant, the Examiner is attaching a copy of Provisional Patent Application 60/300,268 filed June 22, 2001 to which Dawson claims priority; Applicant would have to consider the disclosures and date of filing of this provisional in any attempt to antedate the Dawson patent cited here.

The fluids of Dawson may be used in fracturing as well as other operations such as gravel packing and fluid loss control (all well treatments) (see column 3, lines 15-25). The fluid may be made by blending a polymer and an aqueous fluid (such as water or brine) (see column 3, lines 35-40). The polymer has a degree of ionic substitution of

Art Unit: 1712

preferably 0.01 to 0.12 (see column 3, lines 65-67). Suitable anionic polymer groups include sulfonate groups (see column 4, lines 12-15).

Suitable polymers include those capable of forming a gel in the presence of a cross linker and have anionic groups attached to the polymer backbone (see column 4, lines 63-67). Examples include anionically substituted galactomannan gums, guar and cellulose derivatives – such as anionically substituted guar gum, guar gum derivatives, locust bean gum, Karaya gum, carboxymethyl cellulose, carboxymethylhydroxyethyl cellulose and hydroxyethyl cellulose (see column 5, lines 1-7). Suitable anionic polymer groups include sulfonate groups (see column 4, lines 12-15). Sulfonated guar is specifically mentioned (see column 5, lines 10-11). The polymer may be used at a variety of specifically disclosed concentrations in an overall range of 0.05 to 5.0 weight percent and 20 and 25 to 55, 60 and 65 pounds per 1000 gallons (see column 5, lines 23-55).

Cross linkers like borates, aluminum, antimony, zirconium and titanium may be used (see column 7, lines 5-21) and may be present at 0.05 (among other amounts) and up to about 0.1 weight percent (see column 7, lines 20-40).

The steps of the rejected method claims are implied in the uses explicitly taught.

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

Art Unit: 1712

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

13. Claims 1, 6-9, 11, 16, 21-24, 26, 31, 36-39 and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dawson et al. in US Patent 6,844,296. The disclosures of Dawson are given in detail above.

Dawson specifically discloses all of the limitations of the rejected claims in context, except for the specific use of sulfonate as the anionic substituent. Dawson does disclose sulfonate in a small list of possibilities as cited above and teaches guar sulfonate specifically as stated above. From this, it would have been obvious for one of ordinary skill in the art to have used the sulfonates of the polymers disclosed by Dawson as given above.

As to claims 6, 8-9, 21, 23-24, 36 and 38-39, any remaining sulfonates not already shown as anticipated or rendered obvious by Dawson would have been obvious to one of ordinary skill in the art as so closely related to those already shown unpatentable over this reference as to be obvious variants and from the disclosures in Dawson of the use of anionically substituted/sulfonated cellulose and guar derivatives as discussed above.

As to claims 11, 26 and 41, it would have been obvious for one of ordinary skill in the art to use this sulfonated common derivative of guar given that anionically substituted/sulfonated guar derivatives are disclosed in Dawson as cited above.

Conclusion

14. The prior art made of record and not relied upon is considered pertinent to Applicant's disclosure. US Patents 4,107,057; 4,524,003; 5,008,025; and US Patent Application Publication 2002/0010101 disclose compositions and/or methods at least similar to those of the present invention.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to C. R. Richard whose telephone number is 571-272-8502. The examiner can normally be reached on M-Th, 8am-6pm and alternate Fridays 8am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on 571-272-1302. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 1712

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

CR Richard


PHILIP TUCKER
PRIMARY EXAMINER
ART UNIT 1712